IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

First Named Inventor :	Errol C. Heiman et al.	Appeal No. ---
Appln. No. :	09/823,079	
Filed :	March 30, 2001	Group Art Unit: 2161
For :	COMPREHENSIVE APPLICATION POWER TESTER	Examiner: Etienne Pierre Leroux
Docket No.:	S01.12-1022	

BRIEF FOR APPELLANT

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from an Office Action dated November 26, 2007, in which claims 18-21, 23-31 and 33-36 were finally rejected.

REAL PARTY IN INTEREST

Seagate Technology LLC, a corporation organized under the laws of the state of Delaware, and having offices at 920 Disc Drive, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment filed with the patent application and recorded on Reel 011684, frame 0375.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF THE CLAIMS

I. Total number of claims in the application.

Claims in the application are: 1-37

II. Status of all the claims.

A. Claims cancelled: 1-17, 22, 32 and 37

B.	Claims withdrawn but not cancelled:	---
C.	Claims pending:	18-21, 23-31 and 33-36
D.	Claims allowed:	---
E.	Claims rejected:	18-21, 23-31 and 33-36
F.	Claims Objected to:	

III. Claims on appeal

The claims on appeal are: 18-21, 23-31 and 33-36

STATUS OF AMENDMENTS

No amendments were filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 18 is directed to a power tester (100 of FIG. 1). The power tester includes a multi-voltage power source (107 of FIG. 1) having a first voltage output, which is capable of supplying a plurality of selectable voltage levels (for example, +5 Volts DC and +12 Volts DC shown within box 107 of FIG. 1) for a constant power supply voltage at a nominal power supply voltage of an electronic device (105 of FIG. 1). The power tester also includes circuitry (multifunction I/O board 103, variable low disturbance switch 109, etc., shown in FIG. 1) configured to introduce controllable disturbances into the constant power supply voltage, and an additional power source (108 of FIG. 1) having a second voltage output, which is capable of supplying an additional voltage level (+24 Volts DC shown with box 108 of FIG.1) that is different from the plurality of selectable voltage levels. (Page 4 of the specification.)

Claim 28 is a method claim, which is similar to independent claim 18. The method includes supplying a plurality of selectable voltage levels (page 4, line 20 of the specification; 107 of FIG. 1; 502 and 503 of FIG. 5) for a constant power supply voltage at a nominal power supply voltage of an electronic device from a first voltage output of a multi-voltage power source, and introducing a disturbance into the constant power supply voltage (page 7, lines 6-9, of the specification; 506 and 507 of FIG. 5). The method also includes controlling the disturbance (page 7, lines 10-17, of the specification; 508, 509 and 510 of FIG. 5), and supplying an additional voltage level, that is different from the plurality of selectable voltage levels, from a second voltage output of

an additional power source (page 4, line 22 of the specification; 108 of FIG. 1).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 18-20, 24-30 and 34-36 were rejected under 35 U.S.C. §103(a) based on Hallberg, U.S. Patent No. 5,712,553, in view of Ehiro, U.S. Patent No. 5,970,074, and further in view of Fuse, U.S. Patent No. 5,343,083.

Claims 21 and 31 were rejected under 35 U.S.C. §103(a) based on Hallberg, Ehiro and Fuse and further in view of Cronvich, U.S. Patent No. 5,386,183.

Claims 23 and 33 were rejected under §103(a) based on Hallberg, Ehiro and Fuse and further in view of Lee et al., U.S. Patent No. 4,764,652.

ARGUMENT

On page 2 of the Office Action, claims 18-20, 24-30 and 34-36 were rejected under 35 U.S.C. §103(a) based on Hallberg, U.S. Patent No. 5,712,553, in view of Ehiro, U.S. Patent No. 5,970,074, and further in view of Fuse, U.S. Patent No. 5,343,083.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. In re Vaeck, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Under the criteria set forth in Vaeck, the final Office Action fails to establish a *prima facie* case of obviousness of claims 18-20, 24-30 and 34-36 based on the cited prior art. Further, the combination of cited references fail to describe, expressly or impliedly, all of the

elements recited in claims 18-20, 24-30 and 34-36l, and the examiner has not presented a convincing line of reasoning as to why an artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

Claims 18, which is directed to a power tester, features "a multi-voltage power source having a first voltage output, which is capable of supplying a plurality of selectable voltage levels for a constant power supply voltage at a nominal power supply voltage of an electronic device," "circuitry configured to introduce controllable disturbances into the constant power supply voltage," and "an additional power source having a second voltage output, which is capable of supplying an additional voltage level that is different from the plurality of selectable voltage levels." (Emphasis Added.)

The Office Action states that Hallberg (column 11, lines 1-15) shows a "multi-voltage power source" and an "additional power source" as featured by claim 1. This section of Hallberg is included below:

> "In an alternate embodiment of the present invention a first group of at least three batteries, or voltage subgroups, is operatively connected to supply a first voltage, the power supply also providing at least a second and third voltage supplied from subgroups of the first group that includes at least one battery, the second and third voltages being less than the first voltage. The power supply comprises a plurality of battery interconnection[s] which are controlled by a battery interconnection controller to supply at least one voltage from different and varying subgroups of the first group. The subgroups are varied so that battery depletion is equalized. In this manner, greater differentials between voltage levels are created and additional groupings of batteries used to supply the at least three voltages are possible." (Emphasis Added.)

The above language of Hallberg describes only a single power supply (or single power source), referred to as "the power supply" in the above section of Hallberg, having a number of selectable voltage levels. As indicated in the above section of Hallberg, the power supply provides the different voltage levels by using a first group of at least three batteries to supply a first voltage, and supplying the second and third voltages from subgroups of the first group of the at least three batteries. Since the invention of Hallberg utilizes subgroups from the

same power supply to provide different voltage levels, it would be unnecessary and undesirable to utilize an additional power source not disclosed in Hallberg. The entire Hallberg reference includes nothing about two different power sources, such as the "multi-voltage power source" and the "additional power source," which are included in claim 1.

Further, as the Office Action correctly points out, Hallberg does not disclose circuitry configured to introduce controllable disturbances into a constant power supply voltage. In fact, Hallberg makes no suggestion of that feature. As a result, the Office Action relies on Ehiro (citing FIGS. 1, 4 and 5, column 7, lines 10-50, column 2, lines 15-20).

The Office Action contends, with respect to Ehiro, that the cited figures and language allegedly show circuitry configured to introduce controllable disturbances into a constant power supply voltage. The Office Action makes this allegation, by treating this claim element in isolation, without taking into consideration where the constant power supply voltage is supplied from. As noted above, claim 18 features "a multi-voltage power source . . . supplying . . . a constant power supply voltage at a nominal power supply voltage of an electronic device," and "circuitry configured to introduce controllable disturbances into the constant power supply voltage." The Office Action incorrectly equates a reference voltage value, used in connection with a clock signal fed as an input to a device under test (DUT) in Ehiro, to the constant power supply voltage of claim 18. To support this incorrect contention, the Office Action cites column 7, lines 30-50, of Ehiro, which are as follows:

> "FIG. 5 shows a signal waveform in the function test 2 at step a20 in FIG. 3. The clock signal fed as an input signal to the DUT 2 is a repeating signal decreasing in peak voltage to 0.00 V side at every step by 0.01 V, with a reference voltage of 5.00 V. In the range where the peak voltage exceeds the threshold VTH2, state transition of the Schmitt circuit 21 does not take place, and the current flowing in the DUT 2 hardly changes, and the input signal detected by the resistance 41 and fed to the set input terminal S of the latch circuit 46 is hardly changed. At test step M+1 where the peak voltage of the clock signal is smaller than the threshold VTH2, a large power source current flows due to state transition of the Schmitt circuit 21, and the input signal detected by the resistance 41 and fed to the set input terminal S of the latch circuit 46 comes to exceed the input inversion level of the latch

circuit 46. As a result, after test step M+1, the output of the latch circuit 46 is changed from the state of low level reset in the initial setting to the state of high level. The output level of the latch circuit 46 is detected by the control circuit 16 in the comparator 15 at the test timing shown in FIG. 5." (Emphasis Added.)

The immediately preceding section (Column 7, lines 11-29) of Ehiro is as follows:

"FIG. 4 shows the operation timing of the function test 1 at step a10 in FIG. 3. The input signal of the DUT 2 becomes a pulse signal increasing in peak voltage by 0.01 V at every test step, with a reference voltage of 0.00 V. Until test step N, the peak voltage does not reach the first threshold VTH1, and the Schmitt circuit 21 does not cause state transition. Accordingly a signal to be entered in the set input terminal of the latch circuit 46 is hardly generated. At test step N+1, since the peak voltage of the clock signal exceeds the threshold VTH1, a large power source current on the basis of the state transition of the Schmitt circuit 21 flows, which is detected as a voltage drop of the resistance 41, and an input signal exceeding its input inversion level is fed also to the set input terminal S of the latch circuit 46, and the output level of the latch circuit 46 reset in the initial setting is changed to high level. The output level of the latch circuit 46 is judged at the strobe point of test timing given to the comparator circuit 15, and at test step N+1 the output level is ascertained to exceed the threshold VTH1." (Emphasis Added.)

From the above sections of Ehiro, it is clear that the reference voltage for the clock input can have different values (such as 0 Volts and 5 Volts) and has nothing to do with the power supply voltage VDD, in Ehiro, applied to the device under test (DUT) 21. In Ehiro, any test signals or waveforms are introduced into a signal input of DUT 21, which is different from its power supply connection and do not introduce disruptions to its power supply voltage VDD. (See column 6, lines 16-56 of Ehiro). Thus, the statements in the Office Action regarding Ehiro are incorrect.

Appellants further note that, even if Hallberg were to disclose a multi-voltage power source and an additional power source of the type featured by claim 1, combining Hallberg with Ehiro would not provide a power tester that is capable of introducing controllable

disturbances into a constant power supply voltage. Rather, test signals would be introduced to a signal input of a DUT. Therefore, the reasoning provided in the Office Action is incorrect. Further, Fuse does not make up for the deficiencies of Hallberg and Ehiro.

Since none of the references taken alone or in combination teach or suggest all the elements of claim 18, the Examiner has failed to support a *prima facie* conclusion of obviousness (by not satisfying the third criterion for a *prima facie* conclusion of obviousness set forth in Vaeck) with regard to claim 18. Furthermore, for reasons provided above, the examiner has not presented a convincing line of reasoning as to why an artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Therefore, claim 18 is believed to be allowable.

As noted above, independent claim 28 is a method claim, which is similar to independent claim 18. Independent claim 28 includes "supplying a plurality of selectable voltage levels for a constant power supply voltage at a nominal power supply voltage of an electronic device from a first voltage output of a multi-voltage power source; introducing a disturbance into the constant power supply voltage; controlling the disturbance; and supplying an additional voltage level, that is different from the plurality of selectable voltage levels, from a second voltage output of an additional power source." (Emphasis Added.)

The above-noted elements of claim 28 are substantially similar to that of independent claim 18. Thus, for the reasons included above, the elements of claim 28 are not shown or suggested in the cited references. Therefore, Appellants submit that independent claim 28 is allowable as well.

On page 5 of the Office Action, claims 21 and 31 were rejected under 35 U.S.C. §103(a) based on Hallberg, Ehiro and Fuse and further in view of Cronvich, U.S. Patent No. 5,386,183.

Claims 21 ultimately depends from independent claim 18, and claim 31 ultimately depends from independent claim 28. As noted above, Hallberg, Ehiro and Fuse do not teach or suggest the elements of independent claims 18 and 28. Appellants respectfully submit that

Cronvich does not make up for the deficiencies of Hallberg, Ehiro and Fuse. Thus, claims 21 and 31 are believed to be allowable.

On page 6 of the Office Action, claims 23 and 33 were rejected under §103(a) based on Hallberg, Ehiro and Fuse and further in view of Lee et al., U.S. Patent No. 4,764,652.

Claims 23 ultimately depends from independent claims 18, and claim 33 ultimately depends from independent claim 28. As noted above, Hallberg, Ehiro and Fuse do not teach or suggest the elements of independent claims 18 and 28. Appellants respectfully submit that Lee does not overcome the deficiencies of Hallberg, Ehiro and Fuse. Thus, claims 23 and 33 are believed to be allowable.

CONCLUSION

For the reasons discussed above, Appellants respectfully submit that independent claims 18 and 28 are allowable over the prior art of record. Also, Appellants respectfully submit that claims 19-21, 23-27, 29-31 and 33-36 are allowable as well at least by virtue of their dependency from allowable independent claims 18 and 28, respectively. Thus, Appellants respectfully request that the Board reverse the Examiner and find all pending claims allowable.

The originally filed Appeal Brief dated April 28, 2005 included a fee of $500.00 that was paid electronically. In accordance with MPEP §204.01, $10.00 is the difference between the current Appeal Brief fee and the amount previously paid.

The Director is authorized to charge the $10.00 fee and any other fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,
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Claims Appendix

Claims 1-17 (canceled).

18. A power tester comprising:

a multi-voltage power source having a first voltage output, which is capable of supplying a plurality of selectable voltage levels for a constant power supply voltage at a nominal power supply voltage of an electronic device;

circuitry configured to introduce controllable disturbances into the constant power supply voltage; and

an additional power source having a second voltage output, which is capable of supplying an additional voltage level that is different from the plurality of selectable voltage levels.

19. The apparatus of claim 18 wherein the disturbance is a rising pulse having a maximum voltage which is controllable.

20. The apparatus of claim 18 wherein the disturbance is a low-going pulse having a minimum voltage being less than the nominal power supply voltage.

21. The apparatus of claim 18 wherein the constant power supply voltage is selected from the group of voltages consisting of +5 VDC and +12 VDC.

22. (Canceled).

23. The apparatus of claim 18 wherein the additional voltage is + 24 VDC.

24. The apparatus of claim 18 including a manually operated user interface used to control

the disturbance.

25. The apparatus of claim 18 wherein the disturbance is at least one pulse having a duration and a magnitude which are controllable.

26. The apparatus of claim 18 wherein the disturbance is a plurality of pulses and a frequency and a number of pulses in the plurality of pulses are controllable.

27. The apparatus of claim 18 wherein the disturbance comprises a voltage sequence applied during powering up of the electronic device.

28. A method comprising:

supplying a plurality of selectable voltage levels for a constant power supply voltage at a nominal power supply voltage of an electronic device from a first voltage output of a multi-voltage power source;

introducing a disturbance into the constant power supply voltage;

controlling the disturbance; and

supplying an additional voltage level, that is different from the plurality of selectable voltage levels, from a second voltage output of an additional power source.

29. The method of claim 28 wherein the disturbance is a rising pulse having a maximum voltage which is controllable.

30. The method of claim 28 wherein the disturbance is a low-going pulse voltage which is controllable.

31. The method of claim 28 wherein the constant power supply voltage is selected from the group of voltages consisting of +5 VDC and +12 VDC.

32. (Canceled).

33. The method of claim 28 wherein the additional voltage is + 24 VDC.

34. The method of claim 28 including receiving control parameters from the user interface.

35. The method of claim 28 wherein the disturbance is a pulse having a controllable duration and a controllable magnitude.

36. The method of claim 28 wherein the disturbance is a plurality of pulses and a number of the plurality of pulses are controllable.

37. (Canceled).

Evidence Appendix

None.

Related Proceedings Appendix

There are no known related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.